

RECEIVED

OCT 0 4 2002

TC 1700

BT 10.7-02

Express Mail No. EL954333108US Attorney Docket No. HAU199 CON Client/Matter No. 81250.0040.001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

David T. Bailey, et al.

Serial No. 10/001,880

Filed: November 16, 2001

For: HIGH PURITY BETA-CAROTENE AND PROCESS FOR _

Group Art Unit: 1764

Examiner:

AIL OF THE PROPERTY OF THE PRO

CERTIFICATE OF MAILING BY EXPRESS MAIL

Commissioner for Patents Washington, D.C. 20231

OBTAINING SAME

Sir:

The undersigned hereby certifies that the attached:

- 1. Information Disclosure Statement;
- 2. Form PTO/SB/08A with copies of cited references;
- 3. Certificate of Mailing; and
- 4. Return card

relating to the above application, were deposited as "Express Mail" Mailing Label No.

EL954333108US, with the United States Postal Service, addressed to The Commissioner for Patents,

Washington, D.C., 20231 on Oct. 1, 2002

Oct. 1, 2002

Date

_

Sarah S. O'Rourke, Reg. No. 41,226

HOGAN & HARTSON LLP

One Tabor Center

1200 17th Street, Suite, 1500

Denver, Colorado 80202

(720) 406-5385Tel

(720) 406-5301 Fax





Express Mail No. EL954333108US Attorney Docket No. HAU199 CON Client/Matter No. 81250.0040.001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

David T. Bailey, et al.

Serial No. 10/001,880

Filed: November 16, 2001

For: HIGH PURITY BETA-CAROTENE AND PROCESS FOR OBTAINING

SAME

Group Art Unit: 1764

Examiner:

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. 1.97

Assistant Commissioner for Patents Washington, D.C. 20231

Sir:

Pursuant to 37 C.F.R. § 1.97, the Examiner may wish to consider the references listed on the attached Form PTO/SB/08A. In submitting these references, no representation is made or implied that the references are or are not material to the examination of this application. The patents, publications or other information of which Applicant is presently aware are listed in Form PTO/SB/08A submitted herewith and copies of all such patents and publications are attached hereto.

This Information Disclosure Statement is filed before mailing of a first Office Action in the above case. Accordingly, no fee is believed due. However, any fee associated herewith may be charged to Deposit Account No. 50-1123.

Signed on this _____ day of ______, 2002

Respectfully submitted,

Sarah S. O'Rourke, Reg. No. 41,226

HOGAN & HARTSON LLP

One Tabor Center

1200 17th Street, Suite 1500

Denver, Colorado 80202

(720) 406-5385 Tel

(720) 406-5301 Fax

RECEIVE 2002

OCT 0 4 2002

TO 1700

PTO/SB/08A (10/01) (Substitute for form 1449A/PTO) ATTY. DOCKET NO. HAU199 CON Client/Matter No.

APPLICATION NO. 10/001,880

INFORMATION DISCLOSURE

FIRST NAMED INVENTOR

8250.0040.001

STATEMENT BY APPLICANT

David T. Bailey, et al.

FILING DATE November 16, 2001 **ART UNIT** 1764

(Use several sheets if necessary) Sheet 1 of 3

U.S. PATENT DOCUMENTS

Document No. No. – Kind Code US-3,989,757	Publication Date MM-DD-YYYY 11/02/1976	Name of Patentee or Applicant of Cited Doc Joseph Donald	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	11/02/1976	Joseph Donald	
	Į.	Surmatis	
US-4,115,949	09/26/1978	Avron, et al.	
US-4,199,895	04/29/1980	Avron, et al.	
US-4,439,629	03/27/1984	Ruegg, et al.	
US-4,554,390	11/19/1985	Curtain, et al.	
US-4,680,314	07/14/1987	Nonomura, et al.	
US-4,713,398	12/15/1987	Nonomura, et al.	
US-5,310,554	05/10/1994	Haigh, W. Geoffrey	
US-5,328,845	07/12/1994	Finkelstein, et al.	
	US-4,439,629 US-4,554,390 US-4,680,314 US-4,713,398 US-5,310,554	US-4,439,629 03/27/1984 US-4,554,390 11/19/1985 US-4,680,314 07/14/1987 US-4,713,398 12/15/1987 US-5,310,554 05/10/1994	US-4,439,629 03/27/1984 Ruegg, et al. US-4,554,390 11/19/1985 Curtain, et al. US-4,680,314 07/14/1987 Nonomura, et al. US-4,713,398 12/15/1987 Nonomura, et al. US-5,310,554 05/10/1994 Haigh, W. Geoffrey

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Foreign Patent Doc cntry code – No. – Kind Code	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Doc	Pages, Columns. Lines Where Relevant Passages or Relevant Figures Appear	TRANSL	ATION
·	10	WO 93/24454	12/9/1993	Betatene, Ltd.		YES	NO
	11	GB/2218989A	12/15/1988	Institut Penyelidikan Minyak			

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS		
Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s) publisher, city and/or country where published
•	12	DOERING, LEVENTIS, and ROTH, "Thermal Interconversions among 15-cis-, 13-cis, and all-trans-β-Carotene: Kinetics, Arrhenius Parameters, Thermochemistry and Potential Relevance to Anticarcinogenicity of all-trans-β-Carotene," J. Am. Chem. soc., 177:2747-2757 (1995).
٦	13	MONMA, TERAO, ITO, SAITO, and CHIKUNI, "Carotenoid Components in Soybean Seeds Varying with Seed Color and Maturation Stage, "Biosci. Biotech. Biochem, 58(5):926-930 (1994).
`	14	FABREGAS, FERRON, GAMALLO, VECINO, OTERO, and HERRERO, "Improvement of Growth Rate and Cell Productivity by Aeration Rate in Cultures of the Marine Microalga Dunaliella Tertiolecta," <i>Bioresource Technology</i> 48:107-111 (1994).
•	15	CHEN, CHEN, and CHIEN, "Kinetic Model for Studying the Isomerization of α - and β -Carotene during Heating and Illumination," J. Agric. Food Chem. 42:2391-2397 (1994).

EXAMINER SIGNATURE

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

RECEIVED

OCTO 4 2002

TU 1700

\$B/08A (10/01) Substitute for form 1449A/PTO)

ATTY. DOCKET NO. HAU199 CON

Client/Matter No. 81250.0040.001

APPLICATION NO. 10/001,880

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use several sheets if necessary)

Sheet 2 of 3

FIRST NAMED INVENTOR David T. Bailey, et al.

FILING DATE November 16, 2001 **ART UNIT** 1764

		Sheet 2 of 3		
		OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS		
Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s) publisher, city and/or country where published		
*	16	OOI, CHOO, YAP, BASIRON, and ONG, "Recovery of Carotenoids from Palm Oil," JAOCS," 71 (4):423-426 (1994).		
`	17	KAZARYAN, ARUTUNYAN, RIMARENKO, IVAKIN, KUDRIN, and BOBNEVA, "Method of Beta-carotene Production," Invention certificate #3302060/2813.		
`	18	SPANOS, CHEN, and SCHWARTZ, "Supercritical CO ₂ Extraction of β -Carotene from Sweet Potatoes, of Food Science, 58(4):817-820 (1993).		
•	19	PESEK, WARTHESEN, and TAOUKIS, "A Kinetic Model for Equilibration of Isomeric β-Carotenes," <i>J. Argic. Food Chem.</i> , 38:41-45 (1990).		
100	20	BEN-AMOTZ, and AVRON, Algal and Cyanobacterial Biotechnology, "The biotechnology of mass culturing Dunaliella for products of commercial interest," Longman Scientific and Technical Press, 91-114 (1989).		
٠	21	BOROWITZKA, and BOROWITZKA, "β-Carotene (Provitamin A) Production with Algae," <i>Biotechnology of Vitamins, Pigments and Growth Factors</i> 15-16 (1989).		
`	22	BEN-AMOTZ, Israel Oceanographic & Limnological Research Ltd., "Chemical composition of Konatene™, 5% β-carotene powder of <i>Dunaliella</i> microalgae, a product of Cyanotech Co., Hawaii, USA," The National Institute of Oceanography (1988).		
	23	MAMURO, KUBOTA, SHIINA, NAKASATO, OOI, and ONG, J. Jpn. Oil Chem. Soc., "Extraction of Carotenes from Palm Oil. II. Adsorption Method," 35(8):620-624 (1986).		
	24	MAMURO, KUBOTA, SHIINA, NAKASATO, OOI, and ONG, <i>J. Jpn. Oil Chem. Soc.</i> , "Extraction of Caroten from Palm Oil. III. Comparison of Various Adsorbents 35:620 (1986).		
`	25	BEN-AMOTZ and AVRON, <i>Plant Physiol.</i> , "On the Factors Which Determine Massive, β-Carotene Accumulation in the Halotolerant Alga <i>dunaliella bardawil</i> ," 72:593-597 (1983).		
	26	"Carotenoids as Colorants and Vitamin A Precursors, Technological and Nutritional Applications," edited by BAUERNFEIND, Academic Press (1981).		
~	27	Handbook of Microalgal Mass Culture, 230-234.		
	28	BEL-AMOTZ, and AVRON, " Glycerol, β-Carotene and Dry Algal Meal Production by Commercial Cultivation of <i>Dunaliella", Algae Biomass</i> , G. Shelaf and C.J. Sueder, Editors, North-Holland Biomedical Press, 603-610 (1980).		
	29	SEMENENKO, and ABDULLAEV, "Parametric Control of β-Carotene Biosynthesis in <i>Dunaliella salina</i> cells Under Conditions of Intensive Cultivation," <i>Soviet Plant Physiology</i> , 27:22-30 (1980).		
~	30	"Carotenoids," ed. by OTTO ISLER, published by Birkhläuser Verlag, 63-65 (1971).		
	31	AASEN, EIMHJELLEN, and LIAAEN-JENSEN, "An Extreme Source of β –Carotene," Acta Chem. Scand. 23(7): 2544-2545 (1969).		
	32	JENSEN, Acta Chem. Scaned. "Algal Carotenoids. III. The Oxygen Functions of Fucoxanthin," 18(3), (1964).		
•	33	CIEGLER, ARNOLD, and ANDERSON, "Microbiological Production of Carotenoids, IV. Effect of Various Grains on Production of <i>Beta-</i> Carotene by Mated Strains of <i>Blakeslea trispora</i> ," <i>Applied Microbiology</i> , 7(2) (1959).		
	34	CIEGLER, ARNOLD, and ANDERSON "Microbiological Production of Carotenoids, V. Effect of Lipids and Related Substances on Production of <i>Beta-</i> Carotene," <i>Applied Microbiology</i> , 7(2) (1959).		
	35	ISLER, LINDLAR, MONTAVON, RÜEGG, and ZELLER, "Synthesen in der Carotinoid-Reihe. Die technische Synthese von β-Carotin," <i>Fasciculus I</i> , 39(27)249-259 (1956).		
7	36	"The Determination of Carotene in Green-Leaf Material, Part I. Fresh Grass," Analyst, 75:568-573 (1950).		

EXAMINER SIGNATURE

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

OCT 0 1 2002 33

PTO/SB/08A (10/01) (Substitute for form 1449A/PTO) ATTY. DOCKET NO. HAU199

Client/Matter No. 81250.0040.001 **APPLICATION NO.** 10/001,880

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use several sheets if necessary)

Sheet 3 of 3

FIRST NAMED INVENTOR David T. Bailey, et al.

FILING DATE November 16, 2001 ART UNIT 1764

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s) publisher, city and/or country where published
	37	FURR, BARUA, OLSON, "Retinoids and Carotenoids," 1-71.
5	38	BEN-AMOTZ, "β-Carotene Enhancement and Its Role in Protecting <i>Dunaliella bardawil</i> Against Injury by High Irradiance," <i>Algal Biomass Technologies</i> , 132-135.
4	39	PURCELL, and WALTER, JR., "Preparation of ¹⁴ C-β-Carotene," <i>Methods in Enzymology</i> , 18C:701-706.
	40	SMITH, "Carotene," 36-51.
	41	BOROWITZKA, MOULTON, and BOROWITZKA, "Salinity and the Commercial Production of Beta-Carotene from Dunaliella salina," 224-229.
	42	"Carotenoids and Related Compounds," 53-83.
~	43	"β-Carotene," Dictionary of Organic Compounds, 1008.
~	44	HILLS, et al., Food from Sunlight, "Nature's Most Wonderful Vegetable: Chlorella," 118-119.
	45	"The biochemistry of the carotenoids, 1.3 Isolation and Purification," 8-9.
	46	MOSS, and WEEDON, "Chemistry of the Carotenoids," 205-212.
	47	SYNNOVE LIAREN-JENSEN, "Carotenoids, III. Isolation, Reactions," 176-179.
`	48	MACKINNEY, and MILNER, "Carrot Leaf Carotene," J. Am. Chem. Soc., 55:4728-4729 (1933).
*	49	STRAIN, "Carotene, VIII. Separation of Carotenes by Adsorption," <i>Journal of Biological Chemistry</i> , 105:523-535 (1934).

EXAMINER SIGNATURE

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.